Translating Nutrition Guidelines

For primary care visits

Objectives

• Primary care staff/providers will be able to identify 3 reliable evidenced based nutrition resources on diabetes/prediabetes medical nutrition therapy principles.
• Primary care staff/providers can discuss current issues and fad diet therapy in diabetes medical nutrition therapy.
• Primary care staff/providers can identify when to refer patients for RDN consultation.

Kathleen Stanley, CDE, RD, LD, MSED, BC-ADM, MLDE

What is a “Diabetic Diet”

• For patients, it is often what they have last heard from family, friends, hair salon, or seen on the internet. Ask how they define it.
• There is no “size fits all” medical nutrition therapy plan (MNT) for diabetes
  - Based on individualized assessment
  - Needs to meet basic nutritional needs as well as treatment goals
  - Must include preferences, available resources & cultural influences
  - Must maintain the pleasure of eating
**ADA**

- “...healthy eating can be defined as pattern of eating a wide variety of high-quality, nutrient-dense foods in quantities that promote optimal health and wellness.”

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**Why?**

- Effectiveness of MNT – Sample of the literature

<table>
<thead>
<tr>
<th>Source</th>
<th>Studies Type</th>
<th>MNT interventions</th>
<th>Δ T2 reduction</th>
<th>Δ T2 reduction</th>
<th>Δ T2 reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND Evidence Analysis Library, 2015</td>
<td>RCT and non-RCT trials</td>
<td>Energy reduction, nutrient controlled, education, MNT methods</td>
<td>ΔT2: 0.3%</td>
<td>ΔT2: 0.6%</td>
<td>ΔT2: 0.9%</td>
</tr>
<tr>
<td>N=18 (T2)</td>
<td>N=3 (T1)</td>
<td>RCT and non-RCT trials</td>
<td>ΔT2: 0.4%</td>
<td>ΔT2: 0.8%</td>
<td>ΔT2: 1.0%</td>
</tr>
<tr>
<td>Energy reduction, nutrient controlled, education, MNT methods</td>
<td>ΔT2: 2.4%</td>
<td>ΔT2: 2.8%</td>
<td>ΔT2: 3.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2: 0.8%</td>
<td>T2: 1.2%</td>
<td>T2: 1.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2: 1.0%</td>
<td>T2: 1.4%</td>
<td>T2: 1.8%</td>
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<tr>
<td>T2: 1.2%</td>
<td>T2: 1.6%</td>
<td>T2: 2.0%</td>
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</tbody>
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"You get immediate benefits from eating healthy foods and exercising...and you get long-term benefits”

- Martha Morris (Rush Univ Med Ctr)
“One should eat to live, not live to eat”
-Benjamin Franklin

Terminology

<table>
<thead>
<tr>
<th>Not recommended</th>
<th>Possible interpretation</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>Perceived that you have to restrict yourself, or you are overweight</td>
<td>Meal plan, food plan</td>
</tr>
<tr>
<td>Non-compliant</td>
<td>Failure</td>
<td>Involvement</td>
</tr>
<tr>
<td>Adhere</td>
<td>Obedient</td>
<td>Participates</td>
</tr>
<tr>
<td>Diabetic</td>
<td>Labeled</td>
<td>Person with diabetes (PWD)</td>
</tr>
</tbody>
</table>

Highlights

- No ideal distribution of macronutrients has been identified
- Based on individual assessment
- Institute of Medicine (HMDNAM) Dietary Reference Intakes:
  - Carbohydrate 45-65% of total calories
  - Protein 10-35% of total calories
  - Fat 20-35% of total calories

What is reality?

DRIs vs. NHANES food frequency survey, respondents with T2 DM

<table>
<thead>
<tr>
<th></th>
<th>DRIs</th>
<th>NHANES food frequency survey, respondents with T2 DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate (Carb)</td>
<td>45-65%</td>
<td>45%</td>
</tr>
<tr>
<td>Protein (Pro)</td>
<td>10-35%</td>
<td>10-18%</td>
</tr>
<tr>
<td>Fat</td>
<td>20-35%</td>
<td>30-40%</td>
</tr>
</tbody>
</table>

*The frozen dessert theory*

Reviews

- Scientific Report of the 2015 Dietary Guidelines for Americans Advisory Committee – not necessary to eliminate food groups or adhere to a single dietary pattern of eating
- 2013 Am J Clin Nutrition: There may be a range of beneficial dietary options for people with Type 2 diabetes:
  - Mediterranean approach of 35-55% carbohydrate was found to show improvement for CVD risk, and had the largest improvement in glucose management

Carbohydrates

- DRIs set a recommended dietary allowance (RDA) for carbohydrate of at least 130 g/d for adults and children
- Definitions (not consistent)
  - High carbohydrate diet: ≥55% of total calories
  - Low carbohydrate diet: ≤25% of total calories (<130 g/d)

  - limited research on %
  - make sure nutritional needs are met
  - for diabetes MNT monitoring injected carbohydrate (‘carb counting’) due to the effects on ‘modulatory utilization/post-prandial glucose levels has benefits, especially those using bolus insulin regimes
  - don’t forget to evaluate other macronutrients / micronutrients
Message

• Individualize carbohydrate intake to needs and preferences
• Carbohydrate counting/consistency can provide advantages for post-prandial glycemic control, especially with prandial insulin delivery
• Label reading interpretation skills are valuable and can help with food choices for the PWD
• Refer patients who are on bolus insulin regimes to RDN

Protein

• Choose lower-fat protein sources (lean meats, vegetable protein sources, prepare them without added large amounts of added fats
• Protein has "minimal" post-prandial responses – message: adding protein to meals/snacks does not prevent or assist in treatment of hypoglycemia
• Under research: does protein in "large", or ingestion of protein combined with a high fat content necessitate additional insulin

Source of Protein: Vegetable vs Animal

• Investigators have proposed benefits related to
  – Improved glycemia
  – Cardiovascular risk
  – Dietary quality
  – Body weight/waist circumference
  – LDL cholesterol and cholesterol
Potential benefits for DM complications - Renal

Vegetarian questions
- What type of vegetarian diet: vegan, lacto-ova, mix
- Carbohydrate/protein/fat intake still may play a factor
- Vitamin B12 status (a nutrient deficiency in some vegetarians) / Metformin long-term use may increase risk of B12 deficiency
- Barriers to following this approach due to accessibility, food preparation skills, cultural, and lifestyle factors

Message
- Low fat protein sources/cooking methods can help reduce intake of cholesterol, saturated fat, total fat intake
- Protein foods do not need to be included in meals/snacks for the prevention of hypoglycemia
- No convincing evidence to promote high levels of protein for people with diabetes, or to avoid animal protein
Message

• Vegetarian diets can meet nutritional needs
• Vegetarian diets maybe an option as diabetes MNT for those who want to try this method, still need guidance on macronutrient sources and amounts, carbohydrate distribution/counting (if needed)
• Vegan diets may not meet requirements for vitamin B12, vitamin D, calcium, and iron

Fats

• High dietary intakes of saturated fats, cholesterol and trans fat increases risk of CVD
• Reduction in saturated fats, and replacement with unsaturated fats (especially Poly-unsaturated fats) significantly reduced total serum Cholesterol/LDL levels
• Studies with improved insulin sensitivity: reducing saturated fat intake overall; using mono-unsaturated fats to 50% of the total fat intake (Mediterranean diet)

Type | Example | Food Sources | Proposed Benefits/Risks | Research/Recom.
---|---|---|---|---
Omega 3 | Alpha-Linolenic acid (ALA) | Fish, Fish oils, Flaxseed oil, Walnuts | Benefit: CVD risk Possible Risk: bleeding, immune system response changes | No global supplementation
AND AHA recommend two or more 4 ounce servings of fatty fish per week Dietary Guidelines Advisory Committee (DGAC)
Supplementing in foods as a source (ex: DHA)

Omega 6 | Linoleic acid (LA) | Vegetables, Flax seeds/seeds/mats | Benefit: serum lipid balance, CVD risk | ? Can achieving a level of intake prevent T2 DM
Message

- Eat less foods high in saturated fat (solid at room temperature) and trans fat (read label)
- Choose foods with healthy fats: mono-unsaturated, polyunsaturated (omega 3 & 6’s)
- Cut back on foods that are high in cholesterol (animal fats)

Methods of Meal Planning

- Regular meal schedule can have benefits: glycemic, appetite control, portion control
- Myth: all people with diabetes need 3 meals + 3 snacks/d
  - Hyper calorie intake (weight gain) can occur - is it hunger or appetite?
  - Less time in a post-prandial glycemic state
  - Timing of meals/diabetes medications must be taken into consideration for pharmacological efficacy
- Special populations/plans: GDM, pregnancy and existing DM, pediatric population, geriatric population, those with gastroparesis, malnourished adults/geriatric population
**Message**

- Interview patient for meal patterns
- Discuss effect of ingested food on glucose
- Look at blood glucose diary/data for patterns
- Regular schedules may help with appetite and portion control, thus, may benefit weight management

**Weight Management**

- Fewer than 30% of adults (BMI > 30 kg/m², class 1), are diagnosed with obesity in PCP visit
- Only 37% receive any counseling
- Try avoid using “diet” in conversation, i.e. “How’s your diet”, “Are you following your diet”, which will likely close the conversation
- Weight-bias education is available to health care professionals

**In the office**

- Fewer than 30% of adults (BMI > 30 kg/m², class 1), are diagnosed with obesity in PCP visit
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- Try avoid using “diet” in conversation, i.e. “How’s your diet”, “Are you following your diet”, which will likely close the conversation
- Weight-bias education is available to health care professionals
The 5 A’s Model (Behavior Change Guidance for Wt Management for Clinicians)

<table>
<thead>
<tr>
<th>Steps</th>
<th>Actions</th>
</tr>
</thead>
</table>
| 1. Assess | • Diagnosis as obese or overweight  
• Assess risk factors  
• Assess patient’s readiness/abilities for change |
| 2. Advise | • Discuss risks of wt/wt gain, benefits of lowering wt |
| 3. Agree | • Agree on a goal (ex: 5% wt loss in 6 months) |
| 4. Assist | • Define/provide strategy and resources to meet goal |
| 5. Arrange | • Arrange follow up intervals for accountability |

Strategies – “Who should I go to lose weight doc?”

<table>
<thead>
<tr>
<th>Program</th>
<th>Time</th>
<th>Wt Loss (kg)</th>
<th>HbA1c change</th>
<th>% Reduced DM med*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wt Watchers</td>
<td>12 mos</td>
<td>3.9.1</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Jenny Craig</td>
<td>12 mos</td>
<td>6.6-10.1</td>
<td>-0.3-0.7</td>
<td>30-39% (oral)</td>
</tr>
<tr>
<td>69.90% (insulin)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrisystem</td>
<td>6 mos</td>
<td>7.3-10.8</td>
<td>-0.7</td>
<td>28%</td>
</tr>
<tr>
<td>RDN consult</td>
<td>6 mos</td>
<td>1.4-6.2</td>
<td>-0.8-1.6</td>
<td>8 studies, &quot;decreases in doses or number of DM medications&quot;</td>
</tr>
</tbody>
</table>

“Can’t I just go to the gym” (Don’t want to give up my food)

- Reducing caloric intake is more effective at achieving initial weight loss than exercise alone
- Patients who made dietary changes lost more weight by 6 month mark compared to those just making activity changes
- CDC: adults, regardless of wt should aim for 150 min activity/week
- Physical activity does not address changing “food behaviors”
- Other considerations in managing obesity: psycho-emotional factors, sleep, medications, goal setting, education – AACE/ACE guidelines

5/16/2018
Challenges of weight loss for PWD

- Hyperglycemia causes hunger and fatigue
- Additional health concerns/challenges associated with DM
- Some DM medications are anabolic (i.e. insulin)
- DM medications side effects/need adjustment (medication agents)
- Weight stabilization/better food choices may still represent healthier choices and improve metrics not seen by a scale

EMERALD study: N=998 patients, (2003-2012), measured % weight loss at 6 mos in pts with DM and without with intervention with RD/MD. 78% on oral agents, 12% on insulin, 1.8% on a GLP-1 agent for those with DM. Findings:

- Wt loss with dx of DM: 4.8% +/- 4.70
- Wt loss with no dx of DM: 3.55% +/- 4.52
- Wt loss medications were added more frequently (62.5% in pts with DM compared to 51.9% of non-DM)

Summary: Despite same frequency of visits with RD/MD for wt reduction counseling, and more frequent use of wt loss medications, 6 mos wt loss was lower in the population with DM.

Challenges of weight loss for specific populations

Obesity prevalence rates:
- 47.8% in African American
- 32.6% in White non-Hispanic
- 42.5% in Hispanic

Potential Barriers:
- Income/financial
- Access to care/resources
- Stress
- Depression
- Lack of support*
Pt Strategies for weight loss – talking points
• Have an “open mind”
• Are you willing to try
• Think what is important to you, is change “worth it”
• Set a goal
• Willing to review/learn new information
• What resources are lacking

Food habit questions
• How often do you skip meals? Which one most often?
• How often do you eat out? Where do you like to go?
• Do you eat at other times other than mealtime? If yes, when and why?
• How much alcohol do you consume each week?

Message
• Open the conversation:
  – “How do you feel about your weight”
  – “What would you like to do about it”
  – “What role can I play to help with this goal”
  – “What worked/didn’t work before”
Message

• Not just about calories "in" and calories "out", look at the whole person, evaluate factors contributing to behaviors
• Weight stabilization may be the first goal, may help establish a foundation with the patient
• One fit solutions does not fit all
• Provide resources/support

“Hey doc, what about the “X” diet, is that good for diabetes?”

• Need to consider the overall impact on physical, nutritional, financial, psychological, medical, social, and emotional factors of the individual. Should have reliable data.
• Examples of some current:
  - Intermittent fasting diets
  - Very low calorie/carbohydrate
  - Mail order diets
  - No cooking diets
  - Added food/ingredient

Media favorites & data exists to support claims

• DASH – Dietary Approaches to Stop Hypertension plan
  - Fresh veg, fruit, whole grain, low-fat dairy; limits foods high in saturated fats, sodium, and sugar/sugar derivatives

• Mediterranean – not one definition of this
  - Vegetables, fruits, whole grains, fish, mono-unsaturated fats, little red meat
**Other topics**

*Image of salt and saltshaker*

**“How much salt should I have”**

- The body only needs a small amount of sodium each day, but most Americans (regardless of diabetes dx or not) consume too much.
- Research shows a strong dose-dependent relationship between consuming too much salt and raised BP.
- Recommended <2,300 mg/day, however, further restriction may be indicated for those with both diabetes & HTN.
- Salt is not the same as sodium – remind pts of how much sodium can be found in foods, read the label.

**Alcohol**

- Individualize based on medical condition, lifestyle, habits and behaviors.
- Generally ≤1 drink for adult females, ≤2 drinks for adult males.
- Investigate is it socially, culturally, or emotionally influenced.
Tools for the Primary Care Toolbox

- Provide food diaries
- Provide activity diaries
- Provide weight diaries
- Know your local resources: (i.e. RDNs, walking tracks, local fitness facilities, recreational opportunities, programs, libraries for cookbooks, grocery stores, meal assistance programs)
- DVD home exercise lending library program

Evidenced based nutrition references / handouts

- [www.diabetes.org](http://www.diabetes.org)
- [www.eatright.org](http://www.eatright.org)
- [www.choosemyplate.org](http://www.choosemyplate.org)
- [www.niddk.nih.gov](http://www.niddk.nih.gov) (pre-diabetes and diabetes)

DM nutrition 101 for PCP office

- Get the conversation started:
  - “What’s your favorite meal? What’s your favorite items at that meal?”
  - “Who does the grocery shopping/cooking?”
  - “What are some of your food routines?”
  - “What are some of your go-to snack choices?”
  - “When you are thirsty what do you drink? What do you drink at meals?”
  - “Does healthy eating seem hard? Why?”

Dietary Guidelines for Americans, 2015-2020, For Professionals: Talk to your patients & clients about health eating patterns, March 2016
Step approach suggestion

- Eat on a regular schedule
- Eat less fast food (provide substitutes)
- Introduce My Plate Method
- Eat/drink less concentrated carbohydrate sources
- Purchase more fresh foods (less processed foods)
- Add 1-2 vegetables a day

Step up to the plate

Help facilitate changes

- **Provide encouragement**
  - "Take small steps"
  - "Does not mean you will have to give up all the food you love"

- **Make it seem doable**
  - "It's not all or nothing"
  - "There is not just one right way to eat"

- **Provide positives**
  - Avoid "If it tastes good, don't eat it" jokes
  - "Healthy eating is a powerful tool we have to treat your diabetes"
  - "Healthy eating could simplify the treatment plan"
Homework assignments (optional)

- Suggest they write down a food diary to help assess their own habits
- Suggest they write down questions
- Have them take photos of their plate and bring in
- Have them bring you their grocery receipt
- Inform them you will ask them about their changes

Help facilitate changes, part 2, follow up visit

- Provide empathy, the TWO of you are working together to solve this
- Celebrate small changes/successes
- Identify any benefit detected (weight change/lower BP, etc.)
- Be ready for feedback – know when to refer, or try different strategies

Know technology resources

- List of apps/websites for:
  - Nutrition analysis
  - Activity tracking
  - Weight tracking
  - Nutrition tracking
  - Recipes for people with diabetes
  - Sound nutrition advice: USDA, [www.eatright.org](http://www.eatright.org), [www.diabetes.org](http://www.diabetes.org)
“Are bananas bad for you?”

- Labeling may be the easy way out, but we need to be giving sound advice to last a lifetime.
- Resource: MyPlate method, portion resources

“I can't afford healthy food”

- Ask for their definition of healthy food.
- Food insecurity.
- Portion control may be first step to try as a strategy – identify what is truly the barrier.

“I just don't have the time”

- Plan – do they plan for other things, such as at work or for the family? Identify and encourage those same skills.
- Batch cooking.
- Use time savers.
**Buzz Topics - Artificial Sweeteners**

- On-going debate. "Has the potential to reduce caloric and carbohydrate intake if substituted for caloric sweeteners..."
- In 2017: "Gust taste receptor research has led to questions on low caloric sweeteners in glycemic control. Effects have been hypothesized based mostly on cellular and/or short-term animal studies. Reported is a 12-week clinical trial investigating the effects of sucralose on glycemic control. Sucralose had no effect on fasting or post-prandial glucose, insulin and C-peptide, or HbA1c." To see O'Brien et al.
- Follow GRAS guidelines: [https://www.fda.gov/Food/IngredientsPackagingLabeling/FoodAdditivesIngredients/ucm397725.htm#SummaryTable]

**In 2018: new study on appetite**

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**Buzz Topic – Coconut Oil**

- Coconut oil extracted from coconut meat is mostly saturated fats, which can increase LDL. In a systematic review, supporting evidence presented:
  - 10% saturated fat (higher than butter/lard), raises LDL.
  - In some studies raised HDL, likely due to higher lauric acid content.
- Other oils, such as polyunsaturated oils, not only raise HDL but lower LDL, two beneficial effects.

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**Buzz Topic – Supplementation**

- **AND:** "No clear evidence of support for routine supplementation in people who do not have underlying deficiencies. Routine supplementation with antioxidants (such as vitamin E and C and beta-carotene) and other micronutrients (such as chromium, magnesium, and vitamin D), and herbal supplements...and are not advised due to lack of evidence of efficacy and concern related to long term safety".
- **ADA:** “There is no clear evidence that dietary supplementation with vitamins, minerals, herbs, or spices can improve outcomes in people with diabetes who do not have underlying deficiencies, and are not generally recommended.”
When to refer to an RDN/Diabetes Educator/Mental Health Professional

1. At diagnosis
2. Assess annually
3. When new complicating factors exist
4. When transitions in care occur

Summary of Basic Recommendations

1. Portion control should be recommended for weight loss and maintenance.
2. Understand what foods contain carbohydrate.
3. Use less processed foods.
4. Avoid sugar-sweetened beverages.
5. Substitute foods higher in unsaturated fat (liquid oils) for foods higher in trans or saturated fat.
6. Select lean protein sources.
7. Vitamin and mineral supplements, herbal products are not recommended due to lack of evidence.
8. Moderate alcohol consumption (1 drink/d or less – women / 2 drinks/d or less for men) per provider, alcohol should be consumed with food.
9. Limit sodium to 2300 mg per day.

PCP office tips

- Open the conversation
- Assess needs
- Start with basics
- Provide basic handouts – different languages, literacy levels
- Refer for individualized meal plans, education or counseling
In the home
- More home delivery options
- Increased use of mobile devices
- "Smart refrigerators", grills, pans
- Burger bots

At the grocery store
- More meal kits
- More pre-cut produce/ingredients
- "Grocerants" – in house food stations/food courts
On your plate

- Locally sourced meat & more game meat
- More options for “sweetening” – ex: monk fruit
- Brain health / gut health foods
- Eating tech tools – “smart forking”

Thank you for coming